



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/808,447

03/25/2004

Takeshi Kijima

119247

4853

25944

7590

02/21/2008

OLIFF & BERRIDGE, PLC

P.O. BOX 320850

ALEXANDRIA, VA 22320-4850

EXAMINER

JOLLEY, KIRSTEN

ART UNIT

PAPER NUMBER

1792

MAIL DATE

DELIVERY MODE

02/21/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/808,447

**Applicant(s)**

KIJIMA ET AL.

**Examiner**

Kirsten C. Jolley

**Art Unit**

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 7-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/55/08)  
Paper No(s)/Mail Date 1/31/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

## DETAILED ACTION

### *Election/Restriction*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-6, drawn to a coating method, classified in class 427, subclass 240.
  - II. Claims 7-10, drawn to a ceramic film product, classified in class 428, subclass 688.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another process, for example the product can be made by sputtering or rolling or immersion or spraying.
3. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:
  - (a) the inventions have acquired a separate status in the art in view of their different classification;
  - (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;

- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);
- (d) the prior art applicable to one invention would not likely be applicable to another invention;
- (e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

**Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.**

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either

instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

4. During a telephone conversation with Linda Saltiel on February 1, 2008 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 7-10 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Specification***

6. The disclosure is objected to because of the following informalities: The acronym "MOD" is used throughout the specification, however the acronym (metallo organic deposition) is never spelled out. The meaning of acronym "MOD" should be spelled out on its first use in the specification.

Appropriate correction is required.

***Claim Objections***

7. Claim 5 is objected to because of the following informalities: In claim 5, line 3, it appears that “sol-get” is a misspelling and should be --sol-gel--. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Sanada et al. (US 5,989,632).

Sanada et al. discloses a method of forming a coating film on a base, the method comprising: a first rotational step of rotating the base at a predetermined rotational speed R7; a second rotational step of rotating the base at a rotational speed R8 lower than the rotational speed in the first rotational step R7; and a third rotational step of rotating the base at a rotational speed R9 higher than the rotational speed in the second rotational step R8 (Figure 17 and col. 10, line 45 to col. 11, line 20. The rotation speed R9 is higher than rotational speed R7.

It is noted that the limitations requiring application of a ceramic material including a complex oxide is present in the preamble of the claims only. The preamble is not a limitation on the claims if it merely states the purpose or intended use, and the remainder of the claim completely defines the invention independent of the preamble. *Stewart-Warner Corp. v. City of*

Art Unit: 1792

*Pontiac, Mich.* 219 USPQ 1162; *Marston v. J.C. Penny Co., Inc.* 148 USPQ 25; and *Kropa v.*

*Robie and Mahlman*, 88 USPQ 478.

However, it is additionally noted that Sanada et al. states that its method may be used to apply a spin on glass (SOG) silica coating material onto a semiconductor wafer substrate (col. 1, lines 6-19 and col. 11, lines 31-34). The application of a silica coating material forms a ceramic material. Because the term "complex oxide" is not defined in the specification, it is the Examiner's position that a silica SOG coating material meets the limitation of a "ceramic material including complex oxide."

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sanada et al.

Sanada et al. is silent with respect to a step of drying the coating film after application by spin coating. The last rotational step of Sanada et al.'s method completes spreading of the coating material over the entire surface of the substrate. It is well known in the spin coating art, particularly the art of applying SOG coatings, to dry the applied coating film after application to evaporate the solvents/liquids therein. It would have been obvious to have included a step of drying the coating film after application in the method of Sanada et al. with the expectation of successful results since dry coated films are the end product.

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sanada et al. as applied to claim 3 above, and further in view of Nakagawa (US 6,777,350).

Sanada et al. lacks a teaching of drying the coating film by blowing gas onto the coating film. Nakagawa is similarly directed to a process of applying a coating film by spin coating. Nakagawa teaches that if air or nitrogen gas is blown on the wafer while rotating, the drying time is 2-3 times faster than for the conventional spin-drying technique. It would have been obvious, upon seeing Nakagawa, to have incorporated a step of blowing air or nitrogen gas on the coating film in the process of Sanada et al. in order to significantly speed up drying of its coating film by 2-3 times.

13. Claims 1-3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. (US 5,116,643) in view of Sanada et al. (US 5,989,632).

Miller et al. is directed to a method of preparing a sol-gel and application of the sol-gel by spin coating to form a PZT perovskite complex oxide ceramic film. Miller et al. also discloses that the substrate may have a platinum electrode thereon (col. 11, lines 50-54). Miller et al. generally discloses use of spin techniques to apply the film. Sanada et al. discloses an improved method of applying coatings to semiconductor substrates, including ceramic silica coatings, having high efficiency/low consumption of coating solution since the occurrence of fingers is minimized. Sanada et al.'s method includes use of a second low speed rotation step to accomplish this. It would have been obvious to one having ordinary skill in the art to have used the specific spin coating method of Sanada et al., including a second low speed rotation step, in



the sol-gel ceramic complex oxide application method of Miller et al. in order to reduce consumption of the ceramic coating solution with the expectation of successful results since Sanada et al. is not limited as to the types of coating materials which may be used and specifically teaches use of another ceramic coating material.

Claim 3 is rejected for the same reasons discussed above in section 11.

### *Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matsuura (US 2003/0087535), Lee et al. (US 6,890,595), Shibata (US 2004/0166237), Shiao et al. (US 5,985,363), and Yoshihara et al. (US 6,117,486) are directed to spin coating processes including a second low speed rotational step.

Lipeles et al. (US 4,963,390), Zhuang et al. (US 6,824,814), Klee et al. (US 6,007,868), and Horie et al. (US 6,780,245) are directed to methods of spin coating complex oxide ceramic materials onto a base.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirsten C. Jolley whose telephone number is 571-272-1421. The examiner can normally be reached on Monday to Tuesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kirsten C Jolley/  
Primary Examiner, Art Unit 1792

kcj